

## Claims

1. Glass bottle breaking apparatus having a chamber (27 to 32, 35) including a grating (27 to 32) comprising a plurality of spaced parallel stringers (27) arranged in a first portion (32) adapted to receive bottles (47) and a second portion (31) extending upwardly from the first portion (32) to provide stop means (31), a shaft (22) carrying a series of hammers (43, 44) spaced one from another longitudinally of the shaft (22) and each of the hammers (43, 44) being connected for pivotal movement relative to the shaft (22) and drive means (23, 37, 39, 40) for rotating the shaft (22) on a longitudinal axis thereof to cause the hammers (43, 44) to move in an arcuate path relative to the axis and through corresponding spaces between the stringers (27) so as to break bottles (47) when located in the path characterised in that the chamber (27 to 32, 35) is a hopper (17) for receiving bottles (47) in bulk and in that the shaft (22) is located outside of the hopper (17) such that the path of the hammers (43, 44) extends arcuately into and through the hopper (17) and towards and through the stop means (31) so that the hammers (43, 44) impact on bottles (47) located in the path against the stop means (31).
2. Apparatus as claimed in Claim 1 characterised in that the drive means (23, 37, 39, 40) includes a motor (23) and there is provided control means (24) for controlling operation of the motor (23).
3. Apparatus as claimed in Claim 2 characterised in that the control means (24) includes means for disabling the motor (23) unless contents are contained in the hopper (17).
4. Apparatus as claimed in Claim 3 characterised in that the hopper (17) is pivotable and the control means (24) includes a switch operable upon pivoting of the hopper (17) so that the drive means (23, 37, 39, 40) is operative only when weight of at least one bottle (47) causes pivotal movement of the hopper (17).

5. Apparatus as claimed in any one of Claims 2 to 4 characterised in that the hopper (17) includes a cover (25) and the control means (24) includes means for disabling the motor (23) when the cover (25) is not in a position covering the hopper (17).
6. Apparatus as claimed in any one of Claims 2 to 5 characterised in that the control means (24) includes a sensor (50) for detecting presence of a container (46) for receiving fragments of glass which issue from the hopper (17).
7. Apparatus as claimed in Claim 6 characterised in that the control means (24) is adapted to disable the motor (23) when the weight of contents (47) in the container (46) exceeds a predetermined magnitude.
8. Apparatus as claimed in any one of the preceding Claims characterised in that the hopper (17) is formed as a trough.
9. Apparatus as claimed in any one of the preceding Claims characterised in that the shaft (22) is provided with a plurality of discs (41) coaxial with a central longitudinal axis of the shaft (22) and spaced one from another longitudinally of the shaft (22) and in that the hammers (43, 44) are grouped in pairs, each pair being pivotally connected to a corresponding one of the discs (41).
10. Apparatus as claimed in Claim 9 characterised in that the hammers (43, 44) of each pair are pivotally connected to a corresponding disc (41) at opposite ends of a diameter of the disc (41) and the diameter is offset by 180 degrees relative to a corresponding diameter of each adjacent disc (41).